AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 10, 12, 15, 18, 17 and 25 as indicated below.

1. (Currently Amended) A process for producing a multicomponent bismuth-containing oxide thin film by Atomic Layer Deposition (ALD), wherein an organic bismuth compound having at least one silylamido ligand is used as a source material for the bismuth-containing oxide thin film, and wherein the bismuth-containing oxide thin film is selected from the group consisting of $Bi_4Ti_3O_{12}$, $(Bi,La)_4Ti_3O_{12}$, $SrBi_2Ta_2O_9$, and $Bi_2Sr_2CaCu_2O_{8+x}$.

2. (Original) The process according to Claim 1, wherein the organic bismuth compound comprises a tris(bis(trialkylsilyl)amido) bismuth(III) compound, in which each alkyl is a lower alkyl group having 1 to 4 carbon atoms.

3. (Original) The process according to Claim 2, wherein each alkyl is the same.

4. (Original) The process according to Claim 2, wherein each alkyl is different.

5. (Original) The process according to Claim 16, wherein one or more tris(bis(trialkylsilyl)amido) bismuth(III) compound is selected from the group consisting of tris(bis(trimethylsilyl)amido) bismuth(III), tris(bis(ethyldimethylsilyl)amido) bismuth(III), tris(bis(n-butyldimethylsilyl)amido) bismuth(III), and tris(bis(triethylsilyl)amido) bismuth(III) and tris(bis(tri-n-propylsilyl)amido) bismuth(III).

6. (Original) The process according to Claim 1, wherein the organic bismuth compound comprises a bismuth compound with 1 to 3 silylamido ligands having the formula of Equation 1:

$$-N(SiR^1R^2R^3)_2 \qquad \text{(Equation 1)}$$

wherein each R^1, R^2, R^3 is independently selected from the group consisting of:

linear or branched C_1-C_{20} alkyl and C_1-C_{20} alkenyl groups,

halogenated alkyl and halogenated alkenyl groups, wherein the halogenated alkyl and halogenated alkenyl groups have at least one hydrogen atom replaced with a fluorine, chlorine, bromine or iodine atom,

carbocyclic groups; and

heterocyclic groups.

7. (Original) The process according to Claim 6, wherein at least one of R^1, R^2, and R^3 is a C_1-C_{20} alkyl or a C_1-C_{20} alkenyl selected from the group consisting of methyl, ethyl, n- and i-propyl, n-, sec- and t-butyl.

8. (Original) The process according to Claim 6, wherein at least one of R^1, R^2, and R^3 is the carbocyclic group and the carbocyclic group is an aryl.

9. (Original) The process according to Claim 6, wherein at least one of R^1, R^2, and R^3 is the carbocyclic group selected from the group consisting of phenyl, alkylaryl, and halogenated carbocyclic groups.

10. (Currently Amended) A process for depositing a bismuth-containing multicomponent oxide layer on a substrate by Atomic Layer Deposition (ALD) comprising:

feeding into a reaction space a vapor phase pulse of an organic bismuth compound source material having at least one bis(trialkylsilyl)amido ligand; and

pulsing into the reaction space a pulse of an oxygen source material capable of forming an oxide with the organic bismuth compound source material, wherein the feeding and pulsing produce a multicomponent oxide thin film..

11. (Original) The process according to Claim 10, wherein the feeding and pulsing produce a ternary oxide thin film.

12. (Currently Amended) The process according to Claim 11, wherein the ternary oxide thin film comprises a second metal oxide [source material] selected from the group consisting of copper, titanium, tantalum, calcium, strontium, silicon and aluminum oxides.

13. (Original) The process according to Claim 12, wherein the ternary oxide thin film comprises $Bi_4Ti_3O_{12}$.

14. (Cancelled)

15. (Currently Amended) The process according to Claim 10 [14], wherein the multicomponent oxide thin film comprises at least two further metal oxides selected from the group consisting of copper, titanium, tantalum, calcium and strontium oxides.

16. (Original) The process according to Claim 15, wherein the multicomponent oxide thin film is selected from the group consisting of $Bi_4Ti_3O_{12}$, $(Bi,La)_4Ti_3O_{12}$, $SrBi_2Ta_2O_9$, and $Bi_2Sr_2CaCu_2O_{8+x}$.

17. (Currently Amended) The process according to Claim 10, wherein the bismuth-containing multicomponent oxide layer is deposited at a temperature of less than about 250°C.

18. (Currently Amended) The process according to Claim 17, wherein the bismuth-containing multicomponent oxide layer is deposited at a deposition temperature in the range of about 150°C to about 220°C.

19. (Original) The process according to Claim 12, wherein the second metal oxide is deposited from a second metal source material selected from the group consisting of halides and metal organic compounds.

20. (Original) The process according to Claim 19, wherein the second metal source material is selected from the group consisting of alkoxy, alkylamino, cyclopentadienyl, dithiocarbamate and betadiketonate compounds.

21. (Original) The process according to Claim 19, wherein the second metal source material comprises a double metal precursor in which each molecule contains two metals in a discrete ratio.

22. (Original) The process according to Claim 10, wherein the oxygen source material comprises one or more reactants selected from the group consisting of water, oxygen, hydrogen peroxide, aqueous solution of hydrogen peroxide, ozone, oxides of nitrogen, halide-oxygen compounds, peracids, alcohols, alkoxides, and oxygen-containing radicals.

23. (Original) The process according to Claim 10, further comprising purging the reaction space with an inactive gas between pulses.

24. (Original) The process according to Claim 10, wherein feeding into the reaction space the vapor phase pulse of the organic bismuth compound comprises mixing a carrier gas with the vapor phase pulse.

25. (Currently Amended) The process according to Claim 10, wherein the bismuth-containing multicomponent oxide layer is deposited to serve as a functional layer which is selected from the group consisting of a ferroelectric layer, a dielectric layer, and a super-conducting layer.

26. (Original) A process for forming a bismuth-containing multicomponent oxide thin film by Atomic Layer Deposition (ALD) on a substrate in a reaction space, comprising:

alternately feeding into the reaction space vapor phase pulses of a first metal source material, a second metal source material, and an oxygen source material capable of forming an oxide with the first metal source material and the second metal source material, wherein

said first metal source material is an organic bismuth compound having at least one bis(trialkylsilyl)amido ligand, and

said second metal source material is a volatile compound of a transition metal or a volatile compound of a main group metal.

27. (Original) The process according to Claim 26, wherein one or more said second metal source material comprises one or more reactants selected from the group consisting of groups 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14 of a periodic table of elements.

28. (Original) The process according to Claim 26, wherein each vapor phase pulse of the first and second metal source materials is followed by a pulse of the oxygen source material.

29. (Original) The process according to Claim 28, wherein a ratio of bismuth precursor cycles to second metal source cycles is from about 10:1 to about 1:10, wherein each cycle includes a pulse of an oxygen source material.

30. (Original) The process according to Claim 29, wherein the ratio is from about 6:1 to about 1.5:1 and the multicomponent oxide thin film contains a stoichiometric surplus of 1 to 20 atomic percentage of bismuth.

31. (Original) The process according to Claim 26, further comprising:

depositing a first laminar metal oxide layer formed from the first metal source material and a second laminar metal oxide layer formed the second metal source material; and

annealing a selected ratio of the first and second laminar layers to provide a ferroelectric phase.

32. (Original) The process according to Claim 26, wherein the multipcomponent oxide thin film is a ternary oxide film, the method further comprising:

feeding alternating pulses of the organic bismuth compound and the second metal source material, followed by a pulse of the oxygen source material, into the reaction space to form an amorphous film; and

annealing the amorphous film in the presence of an oxygen-containing gas.

33. (Original) The process according to Claim 26, wherein the multicomponent thin film formed is selected from the group consisting of $Bi_4Ti_3O_{12}$, $(Bi,La)_4Ti_3O_{12}$, $SrBi_2Ta_2O_9$ and $Bi_2Sr_2CaCu_2O_{8+x}$.